



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/708,869	03/30/2004	Lin-Hsin Tu	NAUP0476USA	2868
27765	7590	09/27/2006	EXAMINER	
NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION P.O. BOX 506 MERRIFIELD, VA 22116			ROSASCO, STEPHEN D	
			ART UNIT	PAPER NUMBER

1756

DATE MAILED: 09/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

8

Office Action Summary

Application No.	Applicant(s)	
10/708,869	TU ET AL.	
Examiner	Art Unit	
Stephen Rosasco	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Hasegawa et al. (5,578,421).

Hasegawa et al. teach a pattern forming method, comprising a mask pattern containing first and second portions, said first portion being a semitransparent phase shifting region, said second portion including a semitransparent phase shifting pattern and a transparent pattern which are arranged in an alternating and periodic pattern with a predetermined repeated pitch;

Hasegawa et al. also teach a scribing area 14 is provided between the two pattern element areas 5. In addition, in a peripheral scribing area 15 on two sides perpendicular to each other, a pattern for measuring the accuracy of the mask alignment, a target pattern for the mask alignment, and the like are arranged, which becomes necessary for the process of manufacturing a device.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa et al. (5,578,421) or Tzu et al. (6,001,512) in view of Lee (6,528,836).

The claimed invention is directed to a method of forming and testing a phase shift mask (PSM) comprising: providing a mask substrate having multiple patterns in a main field region and a blank periphery region surrounding the main field region; wherein the blank periphery region is employed as an anti-static charge border of the mask.

Hasegawa et al. is included here as discussed above.

Tzu et al. teach a mask and method of systematically laying out the mask for test patterns in the frame cell region of an attenuating phase shifting mask are described. An array of sub-resolution contact holes are used in the border regions of the mask to prevent over exposure of photoresist in the regions between the device regions on a wafer due to side lobe effect. The mask and method provide for a buffer distance surrounding the features of the test patterns. The buffer distance is free of sub-resolution contact holes. When the buffer distance is correctly chosen problems due to side lobe effect at the frame cell portion of the mask are prevented.

The teachings of Hasegawa et al. or Tzu et al. differ from those of the applicant in that the applicant teaches the use of a blank periphery region employed as an anti-static charge border of the mask.

Lee teaches a photomask comprising a pattern area and an electrically conducting area on a periphery thereof for absorbing static electricity, further comprising means for an active anti-ESD protection to ensure a dynamic and spontaneous dispatching of an electrostatic charge.

It would have been obvious to one having ordinary skill in the art to take the teachings of Hasegawa et al. or Tzu et al. and combine them with the teachings of Lee in order to make the claimed invention because it would have been obvious to one in the art to employ the use of an antistatic region when performing measuring or testing of phase shifting masks in order to minimize distortion from charging.

Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Stephen Rosasco whose telephone number is (571) 272-1389. The Examiner can normally be reached Monday-Friday, from 8:00 AM to 4:30 PM. The Examiner's supervisor, Mark Huff, can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



S. Rosasco
Primary Examiner
Art Unit 1756

S. Rosasco
09/25/06